



### Gateway gathering

JSC employees took advantage of last Saturday's balmy weather to have some fun at the 1989 JSC Picnic. Photos on Page 3.



### Canine caresses

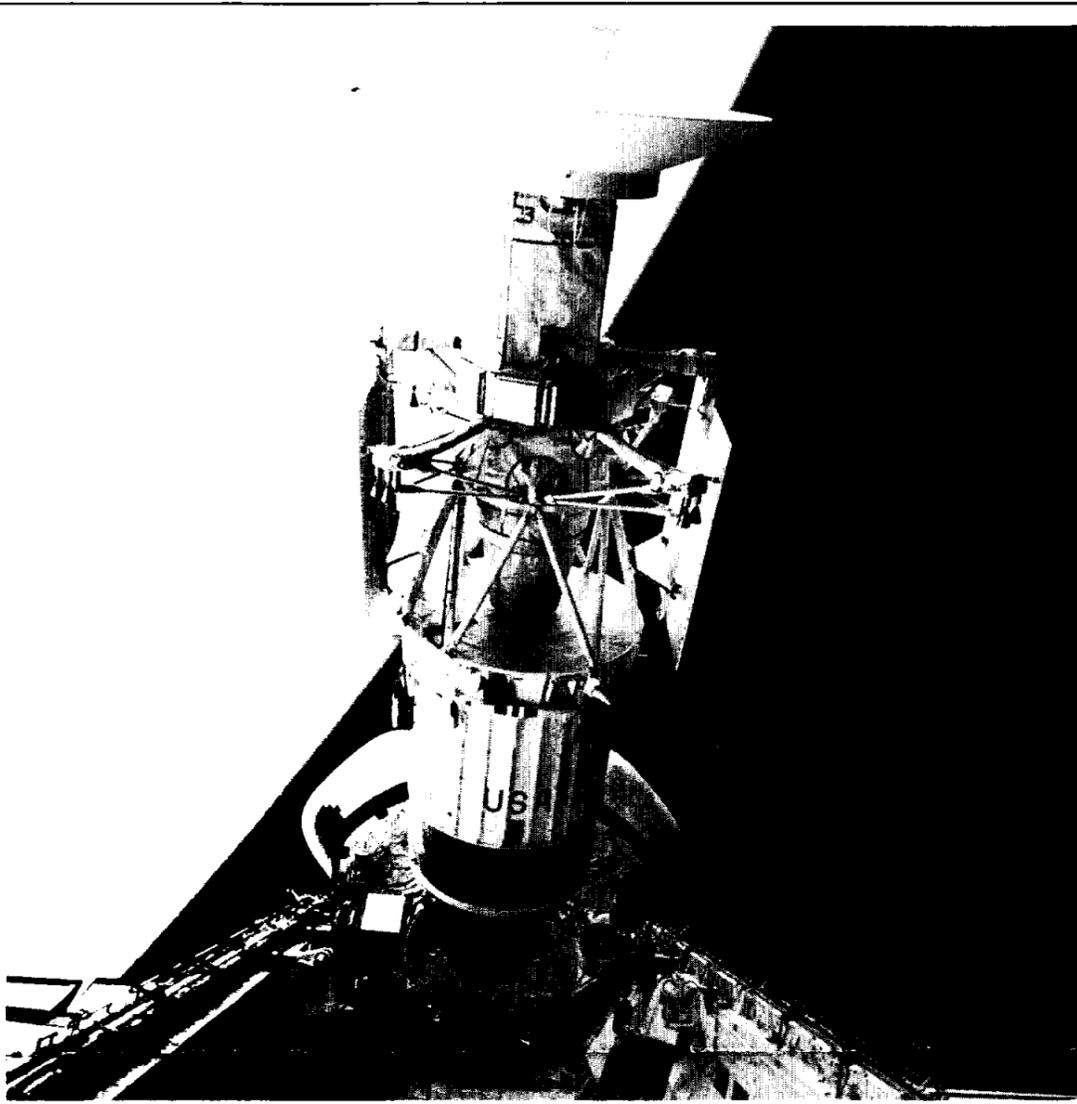
Two of the STS-30 astronauts took paws to reflect on their successful mission at the Ellington Field welcome home ceremony. Photo on Page 4.

# Space News Roundup

Vol. 28

May 12, 1989

No. 19



**ON ITS WAY**—The Magellan spacecraft is released into space during the evening of *Atlantis*' first day in space. The probe was about to begin its 15-month journey to Venus, where it will perform an extensive radar mapping mission.

## Crew of *Atlantis* lofts Magellan, swaps computers

The crew of *Atlantis* returned to JSC on Monday night following a triumphant four-day mission that launched Magellan toward Venus and included the first on-orbit replacement of a space shuttle computer.

Commander Dave Walker, Pilot Ron Grabe and Mission Specialists Mary Cleave, Mark Lee and Norm Thagard arrived at Ellington Field about 9:45 p.m. after their 2:43:38 p.m. CDT touchdown at Edwards Air Force Base.

"You missed Kenny, Dolly and Willie, but we're here to give you a warm welcome back to 'Planet Texas,'" said JSC Director Aaron Cohen

when he introduced the crew at Ellington Field.

An estimated 200 people—family, friends and co-workers—and three dogs greeted the crew near Hangar 990 at Ellington. Cleave, who had taken a photo of her dogs Molly and Beggs aboard *Atlantis* and asked that they be present, and Lee, the owner of a Collie named Buddy, each had their four-pawed friends brought to the homecoming.

"This is family—this is where it all happens as far as we're concerned," said Commander Dave Walker. "If it weren't for you people out there, we wouldn't be able to be up here, we wouldn't have a Magellan going to Venus, we wouldn't have an orbiter safe on the ground at Edwards getting ready to go fly again."

President George Bush telephoned his welcome home wishes to the crew Tuesday from the Oval Office.

"I'm just checking in to wish you five the very best and to thank you for a mission so well-done," he said. "I've got to make a slight complaint on our communications because you guys can send something off to Venus, but I couldn't get a hold of you on the airplane flying back to

Houston."

The president invited the crew to visit him in Washington, and discussed the possibility of a visit to the now-famous presidential puppies.

During the mission, dog-lovers Cleave and Lee teamed up on Sunday to change out a suspect general-purpose computer (GPC),

the first time such a swap had been accomplished on orbit. The computer, one of four GPCs that run simultaneously, failed about 2:45 p.m. CDT Sunday.

Orbit 1 Flight Director Ron Dittmore said the Mission Control team gave the "go" to replace

the computer—even though it had successfully undergone a recovery—to provide an extra measure of confidence during entry. Dittmore said the faulty GPC, which controlled the shuttle's payload buses, never represented a threat to the mission.

The replacement procedure took about four and a half hours, with Cleave and Lee working between middeck lockers to get to the shuttle avionics bay and Thagard keeping an eye on the steps they took.

The crew made extensive use of a hand-held 8-millimeter video camera, one of its development test objectives (DTO). The camera was used to send back to Earth views of the fluids experiment apparatus (FEA) as samples of indium were melted and recrystallized to help determine the effects of microgravity on materials processing in space, to photograph large-scale lightning from space, and to record the computer change-out activities.

Ned Trahan of JSC Engineering's Data Processing Section said the computer failure appears to have been a hardware problem, but that it will take about a week for IBM

Please see **STS-30**, Page 4



**STS-30**  
Magellan

**The STS-30 crew will present a "word and pictures" briefing on the highlights of the mission at 1 p.m. Thursday in Teague Auditorium. All employees are invited to attend.**

## Tile work continues on *Columbia*

By Kyle Herring

Processing work is under way on Space Shuttle *Columbia* to prepare it for launch no earlier than July 31 on mission STS-28—a dedicated Department of Defense flight.

It will be the eighth flight of *Columbia* and the first for the orbiter since January 1986 when it completed mission 61-C.

Technicians completed installation of the left Orbital Maneuvering System pod Wednesday and interface verification testing of both pods will continue through the weekend.

Wednesday also marked the start of frequency response tests of the three main engines to verify the connections between the engines and the orbiter.

Other scheduled work includes servicing the auxiliary power units with water and testing the Ku-band antenna. Tile technicians are continuing to bond tiles and thermal blankets to *Columbia*'s exterior. As of Wednesday, about 200 tile cavities remained on the orbiter.

*Columbia* is scheduled to remain in Orbiter Processing Facility (OPF)

bay 1 until June 23, when it will be transferred to the Vehicle Assembly Building (VAB) for mating with its external tank and solid rocket boosters.

Stacking operations in the VAB on the boosters continues to proceed with the right forward segment installation scheduled for completion today. The external tank/solid rocket booster stack close-outs are scheduled to be completed around June 16 in preparation for *Columbia*'s arrival in the VAB.

## JSC 'packs 'em in' at Paris Air Show

By Linda Copley

NASA's full-scale mock-up of the Hubble Space Telescope should "pack in the crowds" at the Paris Air Show this summer, according to Louis Parker, deputy chief of JSC's Public Services Branch.

Parker leaves May 30 for Paris on a month-long assignment to coordinate final construction of the 6,000-square-foot display; to complete the installation, manage the staffing operation throughout the show (June 8-18); and take care of tearing down, packing up and shipping it home.

The Paris Air Show is held every other year at Paris' Le Bourget Airfield, the landing site of Charles Lindbergh's historic transatlantic crossing in 1927.

"This is the ninth time NASA's participated in this particular air

show," Parker said. "Our theme this time is space science, which seems appropriate in a year that saw NASA's return to planetary exploration.

"Visitors will be invited to 'look farther into the past' as they pass through the main entrance, featuring a 50-by-26-foot star chart, and a 13-by-60 wall mural on the origins of the universe leading to the full-scale cutaway mock-up of Hubble. The graphics and supporting video will be in French and English," Parker said.

"We'll also be commemorating the Apollo 11 lunar landing 20th anniversary, Parker said. Neil Armstrong, Buzz Aldrin and Michael Collins will be available to welcome the French President to the NASA exhibit during his traditional first day

Please see **PARIS**, Page 4



Louis Parker, deputy chief of JSC's Public Services Branch in the Public Affairs Office, shows off one of the NASA displays destined for the Paris Air Show later this month.

JSC Photo by Sheri Durnette

## Endeavour will be new orbiter name

President Bush on Wednesday chose the name "Endeavour" for the new space shuttle orbiter, currently under construction.

The name *Endeavour* resulted from a nationwide orbiter-naming competition supported by educational projects created by student teams in elementary and secondary schools.

In the nationwide competition, involving more than 71,000 students, the national winner in Division I (kindergarten through grade 6) is the fifth graders from Senatobia Middle School, Senatobia, Miss. The team created a space camp simulation, where they taught lower elementary students facts about space through hands-on activities. The nine activities ranged from packaging payload experiments, wireless communication and working a manipulator arm to trying on a team-made spacesuit.

In the Division II category (grades 7 through 12), the winning team is from Tallulah Falls School Inc., Tallulah Falls, Ga. The nine-member team

Please see **ENDEAVOUR**, Page 4

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# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays:

General Cinema (valid for one year): \$3.50 each.

AMC Theater (valid until May 31): \$3 each.

Sea-Arama Marineworld (Galveston, valid until Aug. 17, 1990): adults, \$8.75; children \$5.50.

Sea World (San Antonio, year long): adults, \$17.25; children \$14.75.

Astroworld: adults, \$14.12; children under 4, \$11.99; season pass, \$32.36. Waterworld, \$8.15.

"Blithe Spirit" (May 12, 8:15 p.m., Clear Creek Country Theatre): \$5.

Galveston Historic Homes Tour (May 13 & 14, includes viewing of 10 homes, two lectures, shuttle bus): \$8.

Salt Dome Festival-Concert (June 3, West Chambers County Houston Raceway Park, includes Willie Nelson, Ray Benson, Asleep at the Wheel, Tony Perez and Chaparral): \$12.50.

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# Gilruth Center News

**EAA badges**—Dependents and spouses may apply for a picture I.D. 6:30-9:30 p.m. Monday-Friday.

**Defensive driving**—Course is offered from 8 a.m.-5 p.m. May 20 or June 17: \$22.

**Weight safety**—Required course for those employees wishing to use the Rec Center weight room. Upcoming classes will be 8-9:30 p.m., May 18, June 14 and June 29: \$4.

**Ballroom dance**—Professional instruction in beginning, intermediate, and advanced ballroom dancing. Classes meet every Thursday for eight weeks, beginning May 4. Beginning and advanced classes meet 7-8:15 p.m.; intermediate 8:15-9:30 p.m.: \$60 per couple.

**Aerobic and exercise**—Both classes are ongoing: \$24.

**Taekwondo and Hapkido**—Korean art of self-defense, mental and physical discipline. Classes are 6:30-8:30 p.m., Tuesday and Wednesdays, beginning May 16): \$40 per person per month.

**Tennis lessons**—Beginning tennis, Mondays 5:15-6:45 p.m. Six week course begins June 19: \$32 per person.

**Summer Softball Sign-ups**—Summer softball sign-ups will be held the week of May 22 at the Gilruth Recreation Center.

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# Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

## Property

Lease: Furn. Baywind condo, 1 BR, \$300/mo. 333-3925.

Sale: Lot, Cape Royale on Lake Livingston, ideal for wkld. or retirement, restaurant, club house, pool, golf, \$14,000. Walker, x34642.

Sale: 2 lots, 30' x 70' ea., suitable for 2 mobile homes or 1 cabin, 70 mi. from Houston on New Caney Creek, fishing, pier, ramp, playground, pool, \$5,000 for both. Walker, x34642.

Sale/Lease: 3-2-2, FPL, indoor W/D hook-ups, quiet neighborhood, near schools, \$475/mo. plus 1st mo. dep. 534-2985.

Sale: Seabrook, 3-2-2, FPL, spa w/redwood deck, recently remod., new A/C, heater, roof, corner lot on cul-de-sac, assum. 9 7/8%, \$70,000 by owner. Richard, x30271 or 474-9334.

Sale: Friendswood/Heritage Park, 3-2-2, 5 yr. old, near FM 2351, ex. cond., assum., FHA 9.5%, \$621/mo., \$6,500. x35021 or 482-5615.

Sale: Groveton, TX (East Texas), 2-1-1 country home on 1/3 acre, fruit trees, pecan trees, lg garden area, \$12,500. 688-2927 or (409) 544-2116.

Rent: League City, 3-2-2, 212 Pecan Drive, no pets, avail. June 16, incl. lawn care, \$750/mo. 554-6200.

Rent: Lake Livingston, waterfront, 3-2, fully furn., new cond., covered decks, pier, sleeps 6. 482-1582.

Sale: Galveston Bay, waterfront home, 3-3, 6-car gar., deck, spa plus extras, view of bay. 334-1909.

Rent: Galveston beach house, front row, adjacent to San Luis Pass fishing pier, 2 BR, lg. deck overlooking Gulf, wkds. or wkly. 894-0979.

Sale: Friendswood/Sun Meadow Estates, wooded lot in estab. neighborhood, cul-de-sac, bordered by stream and golf course on 2 sides, approx. 245' deep and up to 86' wide, util. on site, \$31,500. Doug, x32860 or 486-7412.

Sale: Cocoa Beach, FL, oceanfront, time-sharing condo, five-star rating, take over payments. Kelly, 483-1356 or 488-4870.

Lease: One BR condo, new carpet, refrig., FPL, lg. walk-in closet, \$325/\$150 dep. 282-3063.

Sale: Webster, 3-2-2, new roof and carpet, gameroom, det. gar., handy to JSC, Webster med. cen., Baybrook, \$59,500. Owner, 332-5177.

Sale: League City, 2.06 acres, near schools, city water and sewer avail., 15 min. from NASA, \$39,900. 554-6695.

Sale: Seabrook, 3.29 acres w/m. 2 BR/1 B home, 5 mi. from NASA, secluded, \$97,500. 532-4784.

Sale/Lease: Austin/UT condo, 1-1, near law school, assum. loan, or lease, \$395/mo. J. Craig, 282-1911 or 420-2936.

Rent: Lake Travis cabin, private boat dock, CA/H, fully equipped, spring/summer rental rates, \$300/\$425 wkly. 326-5652.

Rent: Sagemont, 3-2-2 w/sep. maid quarters,

FPL, new energy eff. A/C, miniblinds, ref., \$600/mo., low dep. Gil, 941-1129.

Sale: Alvin/Pearland, brick 3-2-2 w/workshop area on quiet cul-de-sac, 1,800 sq. ft., FPL, C/AH, 3/4 acre, trees, fenced, dog kennel, patio, lg. living area w/beamed cath. ceiling, \$53K. 977-0223.

Sale: '82 14' x 72' Fleetwood Festival mobile home, 2-2, CA/H, appli., ex. cond., \$8,500. OBO. 474-4306 or (409) 925-5554

## Cars & Trucks

'78 Corvette, silver anniv. edi., now 2-tone silver w/oyster white int., all power, T-tops, 14K mi. on new Corvette eng., totally restored to showroom cond., fin. avail., \$10,900. OBO. Richard, x30271 or 474-9334.

'87 Buick Regal, T-type, metallic gray, ex. cond. x35615 of 480-1334.

'84 Camaro, V-8, auto., T-tops, 46K mi., dk. blue, one owner, \$5,000. Diana, 333-6599.

'86 Ford Taurus, sedan, 4 dr., loaded, 41K mi., \$8,000 or assume \$294/mo., GMAC. 488-6610.

'88 Chevy Silverado pickup, short wheel base, low mi., \$10,800. x35124.

'78 Merc Cougar Broughan, AM/FM, 8 track, P/S, P/B, A/C, tilt, cruise, runs good, \$1,200. Rusty, x36160 or 482-4549.

'82 Dodge Omni, red, 4 dr., 4-spd., A/C, AM/FM, 59K mi., runs OK, needs clutch soon, \$1,100. 486-5969.

'77 '26' Allegro motor home, Chevy 454, 51K mi., good cond., \$9,000. OBO. 479-6829.

'71 Dodge Charger, 69K mi., 318, power, auto., air, new urethane paint, de-chromed bumpers, stereo, no rust ever, \$3,500. 664-9472.

'76 Toyota Celica, runs good, A/C, 5-spd., \$1,000. x30075 or 481-0688.

'88 Dodge Ram 50, 5-spd., A/C. 534-3071.

'77 Pinto station wagon, 2.3l, A/C, stereo, mag wheels, good shape, \$950. 473-2709.

'76 Pontiac Firebird, V-8, 350 motor, 350 turbo auto. trans., P/B, P/S, tilt wheel. 534-3071.

'85 Buick Park Avenue, white w/red leather int., many extras, very clean, 67K mi., \$7,900. 488-0189.

'88 Mazda 323 SE Coupe, 5-spd., A/C, AM/FM w/tape, 24,800 mi., ex. cond., \$6,800. Jay, 335-7134 or 481-2335.

'79 MGB Limited Edition, 28K orig. mi., one owner, very clean, \$4,750. nego. 482-9468.

'77 Nova, needs clutch work, eng. runs great, \$800. OBO. Scott, 485-4364.

## Boats & Planes

Tri-Q experimental aircraft, 2-place, 140mph, 75hp, 300 hr T.T., based at Houston Gulf Airport, 20K plus, will take \$12,500 or trade for fishing boat, motorhome, car, etc. Wood, x37007.

20' twin eng. runabout, re-cond. outboards, new int., new trailer w/power winch, \$3,100. Brian, 480-5430.

'86 Hobie 16 - blue w/multi-color sails, sail box, tilt trailer, ex. cond., many extra access. 471-9245.

13' Sailfish sailboat, good cond., w/cart, minus boom and mast, \$450; 17' fiberglass canoe, paddles, life preservers, car-top carrier, ex. cond., \$475. Ralph, 282-1861.

Sailboard, good cond., \$150. Jones, 488-3976.

## Cycles

AMF 10-spd., \$30. 488-6246.

## Today

**Cafeteria menu**—Special: tuna and salmon croquette. Entrees: pork chops with yam rosette, Creole baked cod. Soup: seafood gumbo. Vegetables: Brussels sprouts, green beans, buttered corn, whipped potatoes.

## Monday

**Cafeteria menu**—Special: Italian cutlet. Entrees: braised beef ribs, chicken a la king, enchiladas with chili. Soup: cream of broccoli. Vegetables: Navy beans, Brussels sprouts, whipped potatoes.

## Tuesday

**IEEE seminar**—The IEEE Education Committee will present "The Integrated CASE Satellite Seminar: Methodology and Technology for a New Generation of Information Systems," from 8:30-noon on May 16 at the Rec Center. A repeat showing of the seminar will occur from noon until 3:30 p.m. Cost is \$4 per person. For information, call Eddie Robinson, 333-7029 or Dr. Zafer Tagui, 333-6544.

**American Society of Mechanical Engineers (ASME)**—The May dinner meeting of the Aerospace Technical Chapter will be at 6 p.m. May 16 at the Kings Inn. Paul Campbell, lead engineer for EVA and Systems Robotics for Rockwell International's STS Division's Houston office, will discuss Space Station Robotic Systems. Contact Sam Veerasamy at x31581 or Edward Carter at 333-6791 for information. Tickets are \$12.

**Cafeteria menu**—Special: stuffed

cabbage. Entrees: turkey and dressing, round steak with hash browns. Soup: beef and barley. Vegetables: corn cobette, okra and tomatoes, French beans.

## Wednesday

**JSC Astronomy seminar**—An open discussion meeting will be from noon to 1 p.m. in Bldg. 31, Conference Rm. 193. For more information, call Al Jackson, x33709.

**Cafeteria menu**—Special: pepper steak. Entrees: catfish with hush puppies, roast pork with dressing. Soup: seafood gumbo. Vegetables: broccoli, macaroni and cheese, stewed tomatoes.

## Thursday

**AIAA technical symposium**—The 14th annual Technical Symposium, "The Next Era in Space" cohosted by the American Institute of Aeronautics and Astronautics and the University of Clear Lake (UHCL) High Technologies Laboratory will be May 18 at UHCL. Owen Morris, president of Eagle Aerospace Inc., will be the featured speaker. For more information, call Bill Geissler, 333-6863.

**Cafeteria menu**—Special: chicken fried steak. Entrees: beef tacos, barbecue ham steak, Hungarian goulash. Soup: turkey and vegetable soup. Vegetables: spinach, pinto beans, beets.

## May 19

**AFCEA to meet**—The Armed Forces Communications and Electronics Association will meet from 11:30 a.m.-1 p.m. May 19 at the Nassau Bay Hilton. Cosmonaut Musa

Manarov, who spent 366 days aboard the Soviet "Mir" space station, is the featured speaker. Tickets are \$8 for members, \$10 for non-members. Reservations must be made by May 17. Contact Debbie Williams, 282-4952, for reservations and information.

**Cafeteria menu**—Special: tuna and noodle casserole. Entrees: liver and onions, deviled crabs, roast beef with dressing. Soup: seafood gumbo. Vegetables: whipped potatoes, peas, cauliflower.

## May 23

**BAPCO to meet**—The Bay Area PC Organization will meet at 7:30 p.m. May 23 at the League City Bank and Trust. For more information, call Earl Rubenstein, x34807, or Ron Waldbillig, 337-5074.

## May 24

**NMA to meet**—The NASA/JSC Chapter of the National Management Association (NMA) will meet at 5 p.m. May 24 in the Gilruth Recreation Center ballroom. Social hour starts at 5 p.m. and dinner at 6 p.m. The featured program will be a management panel discussion including John Aaron, manager of the Space Station Projects Office; William J. Huffstetler, manager of the New Initiatives Office; and Richard Kohrs, deputy director, NSTS Program Office. Members should notify their boosters of plans to attend by noon May 17. Non-members should contact Ann Hammond at x32933 if they would like to attend. Call Gerald Chapman at x34848 for more information.

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Sailboard, good cond., \$150. Jones, 488-3976.

## Cycles

AMF 10-spd., \$30. 488-6246.

'85 Honda Shadow 500, ex. cond., new batt., low mi., \$1,600. Shari, x38507 or 996-7736.

Raleigh-Rampar 10-spd., 27" w/water bottle, book rack, and speedometer-odometer. Bryan, 282-3277.

'79 Yamaha XS 750 Special, 1 owner, windjammer, AM/FM cass., new tires, lots of extras, \$1,100. OBO. Rich, x34818 or 480-8335.

Honda 650 turbo, low mi., new tires, new batt. 334-1909.

Redline racing bike, \$100. OBO. Mike, 481-0489.

'84 Honda Elite motor scooter, 125cc, low mi., like new, garaged. 486-1177.

## Audiovisual & Computers



# GATEWAY TO • THE • STARS

Fun was fast and furious at the 1989 JSC Picnic this past Saturday at the Gilruth Recreation Center. Monica Kruest, co-chair of the picnic, said 3,600 tickets to the picnic were sold, food was dished up to 3,300 of those people, and a total of 1,200 snow cones were passed out.

The dunk tank, face painters and palm reader earned \$1,600 for Interfaith Caring Ministries of League City, a local charity that provides food, clothing and other assistance to the needy.

Among the sights to be seen were (clockwise from above):

Youngsters making mad dashes through the obstacle course as parents yelled encouragement, cameras in hand;

Henry Pohl, JSC's director of engineering, discovering that someone had put ice in the dunk tank as he fell victim to an accurate arm;

Participants in the horseshoe tournament putting the finishing touches on their pitches;

Arnie Aldrich, director of the National Space Transportation System Program in Washington, D.C., cutting a rug with Lillian Hudson, his deputy's secretary;

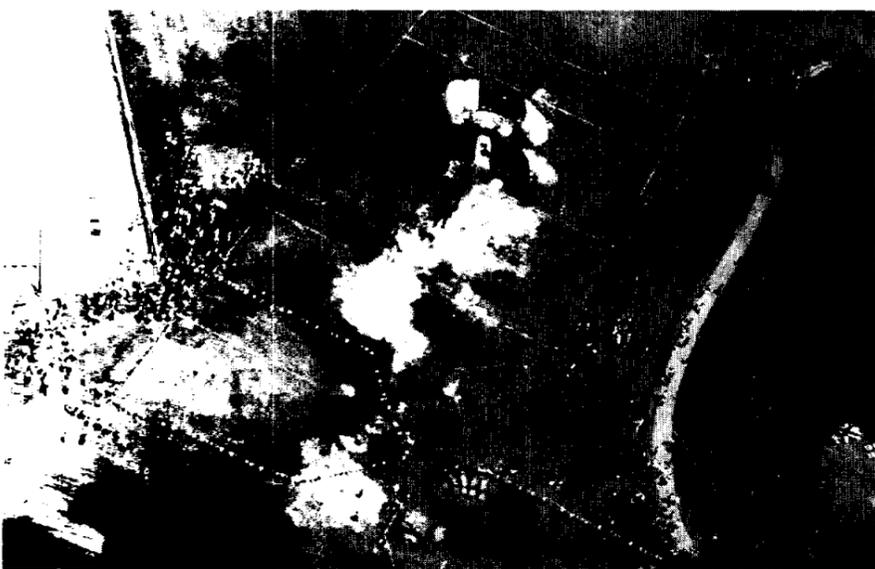
A Little Leaguer bearing his affinity for arachnids with a spider painted on his nose, cheeks and forehead;

A rider in the Almost Anything Goes competition giving directions to her careening cohort, whose vision was obscured by a pink blindfold;

Children enjoying a wild ride on one of the midway attractions;

Parachutists Don Pallesen and Robert May falling out of the sky toward a waiting crowd;

The Syncopations Cloggers, a local dancing group with JSC members, entertaining the pavilion crowd.



Photos by Dale Martin, and Dave Flanagan



# NASA enters talks for flight telerobotic servicer pact

NASA has picked Martin Marietta Space Systems Co. of Denver to negotiate a cost-plus-award-fee contract for the flight telerobotic servicer (FTS), a space robot that will help assemble and maintain Space Station *Freedom*.

Martin Marietta's Houston office on Bay Area Blvd. would provide FTS crew training and shuttle and space station integration support under the proposed contract, according to Debi Horn, Martin Marietta spokeswoman.

The contract, expected to be effective July 1, will consist of the delivery of flight hardware and software for three missions which consist of two demonstration test flights (DTF) aboard the shuttle and an operational system for Space Station *Freedom*. In addition, the contract will contain an option for engineering support during the life of the contract.

The total cost, excluding fee, as proposed by Martin Marietta for the basic effort, is approximately \$297

million with an additional cost of almost \$6 million for the option.

The contract will provide for the design, development, test, integration, launch support, training and ground support systems, mission operations support and sustaining engineering of all hardware and software required for the FTS program missions. It also includes two Space Shuttle DTF's and the launch of the final FTS on one of the S.S. *Freedom* assembly flights. This effort, anticipated to

extend through 1998, will be performed primarily at Martin Marietta's facilities in Denver.

A key element of the *Freedom* program, the FTS will employ technologies not used on previous NASA spacecraft. Spinoffs from robotic technologies developed in the FTS program are expected to advance U.S. industrial automation capabilities.

Space Station *Freedom* will be a permanently manned base in low-

Earth orbit for conducting scientific research, developing new technologies and enabling human exploration of the solar system. The United States, Japan, Canada and nine European countries, through the European Space Agency, are contributing elements to the program and will share in its utilization. A crew of eight will permanently work and live aboard *Freedom*, which will be designed to operate for several decades, well into the 21st century.

## Buyers earn Small Business Week honors

JSC honored Elsie Dorman and Tom Purk of the Procurement Division, as "Small Business Buyers of the Year" in ceremonies marking its annual observance of Small Business Week May 7-13.

Dorman was presented a plaque by James Neal, director of procurement, in recognition of her efforts as the JSC buyer whose cooperative efforts resulted in the largest number of new awards to small businesses by a single buyer. Purk received his award from Neal for having the largest dollar volume of new awards to small business during fiscal 1988.

"NASA has recognized the potential of the small business community and has worked actively to utilize the capabilities within those companies," said Bob Dupstadt, small business specialist, procurement operations. "During fiscal year 1988, JSC placed more than \$90 million with small business firms, a record amount for the center."

"Small Business Week ceremonies focus our attention on the outstanding achievements of the small businesses in our communities and on the contributions that the millions of small business owners make to our economy," said Dupstadt. "Small firms employ six out of every 10 people, account for the majority of new jobs, are more flexible than big business in responding to shifting markets, and are able to bring new products to market faster than large businesses."

In an additional honor, this year Life Systems Inc., a small business nominated by JSC, has been selected as this year's Region V Small Business Contractor of the year.

## JSC extends, supplements Lockheed pact

By Linda Copley

JSC has extended its ongoing engineering and life sciences support contract with Lockheed Engineering and Sciences Co., Houston, and signed a supplemental agreement for additional Lockheed engineering support.

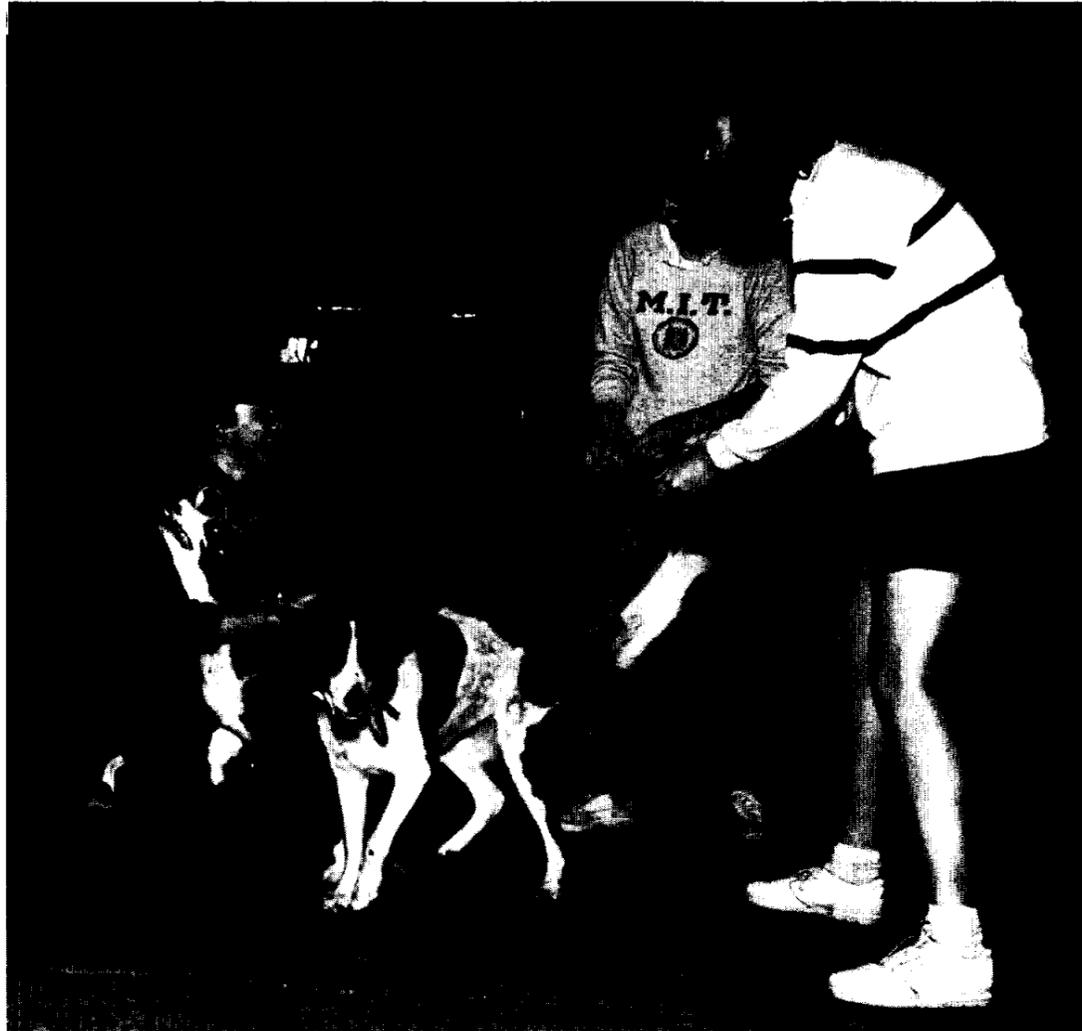
The value of the supplemental agreement, covering additional tasks related to design and development of the crew escape suit, and space shuttle and space station technology, totals \$70.1 million.

JSC exercised its option to extend the engineering and life sciences support contract for two years beginning May 10 for a total of \$175.4 million.

The extension and supplement will increase the total value of the contract to \$440 million.

The contract provides research and development support services to JSC's Engineering Directorate, to elements of the Space and Life Sciences Directorate, and other JSC elements for related functions. The major emphasis is continued support to space shuttle, space station, and advanced missions programs.

Lockheed will continue to provide functions ranging from hands-on maintenance and operations tasks to major systems design and development engineering projects both at JSC and at Lockheed's facilities adjacent to the center.



JSC Photo by Shen Dunnette

**ASTRONAUT'S BEST FRIENDS**—STS-30 Mission Specialist Mary Cleave gets a warm greeting from her two dogs, Beggs and Molly, at the crew's Ellington Field welcome home ceremony Monday night. Beth Grimaldi, center, and Paige Lucas brought the dogs to the ceremony.

## STS-30 crew extends shuttle's reach

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technicians to determine exactly what component failed.

The official deployment time for Magellan, which by now is some 1.2 million miles from Earth, was 6 hours, 14 minutes and 29 seconds mission elapsed time (MET). It will reach Venus in about 15-months and begin its radar mapping of the planet's surface and search for clues as to why a planet so similar to the Earth in size and mass has evolved so differently.

*Atlantis* landed on runway 22 after a last-minute change in the flight plan to take advantage of a 40-degree crosswind that was blowing at about 11 knots and gusting to 18 knots. The test of orbiter landing performance in crosswinds was one of several development test objectives per-

formed by the crew.

"You've extended the shuttle's reach far beyond Earth orbit," CAPCOM Frank Culbertson said after the landing. "Commodore Magellan would approve."

"Roger that," Walker said in return.

"The vehicle looks as clean as any one that I've ever seen," said Rear Adm. Richard Truly, associate administrator for space flight, after inspecting the orbiter with the crew.

"The shuttle proved to be the useful vehicle for science that we knew it was going to be," agreed Dr. Lennard Fisk, associate administrator for space science. "Magellan is on its way to Venus. The deployment was very successful, the trajectory was about as accurate as you can get and the spacecraft is working without any difficulties

whatsoever.

"Magellan is the beginning of, essentially, a new era in space science. As a measure of that, this Saturday we'll be shipping the Galileo spacecraft from JPL to the Cape. We've got *Atlantis* back, so we plan to load it up again next October and get Galileo on its way to Jupiter. We will do that, mission after mission, over the next five years for some 36 flights in space science and applications," Fisk said.

"Everything worked well because you all worked real hard with us from the beginning of this mission to the end of it," Cleave said at Ellington. "We really, really appreciate your efforts. You can't imagine how good it is to be back and feel that there is a spacecraft going to Venus and we were all a part of it."

## Paris Air Show work under way at JSC

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tour and to participate in other Apollo anniversary-related events.

"Planning for the air show begins soon after returning from the previous one," said Leah Nappier, exhibits events scheduler for Omniplan, the NASA contractor that acts as administrative coordinator for the project. "And this show, big as it is, is only one of the events JSC's exhibits area participates in," Nappier said.

Bob Luke, supervisor of the Omniplan exhibits unit, is in Paris, supervising the mostly German work crew as it constructs the exhibits. In an international effort for bids that spanned two continents, Omniplan has contracted to build the Hubble

mock-up to Carli International, Rome; the architectural designs for the exhibit to Bill Cannon and Associates of New York, and the actual construction of the entire exhibit to Glahe International of Cologne, West Germany.

Meanwhile, back at JSC, the seven people in Omniplan's shop, reporting to foreman Dick Mains, have been busy for weeks receiving items on the first step of their journey to Paris, Nappier explained. "They must uncrate everything, check for damage, and re-crate in the original packing, or, if necessary, create entirely new packing for the trip."

Nappier also prepares the detailed customs declarations that list each item, from lunar samples to paper

clips, and its actual value. "I'm really careful with those," Nappier explained, "since whoever signs the customs paperwork is legally liable for two years."

"The show requires a large coordination effort, said Fay Carlton, manager of Omniplan's public affairs office. "Our duties are so diverse, we end up coordinating travel arrangements for the Apollo 11 crew at the same time we're shipping the two new space station suits, the Ames AX5 and the Mark-3 from JSC. And those two items are valued at 1.2 million dollars. Other integral members of the Paris effort include Carolyn Fisher, Omniplan's projects controller, and designer Gayla Gallagher.

## Students earn JSC exchange scholarships

The children of four JSC employees will receive scholarships from the NASA Exchange-JSC Scholarship Program, the first time so many have been presented in one year.

The scholarship program began in 1967, and these winners bring the total number of recipients to 58. Each scholarship provides \$4,000, or up to \$1,000 a year, for study at any university. The winners are:

Steven T. Bauch, son of Garland T. Bauch of the National Space Transportation System's Management Systems Office, plans to graduate from Clear Creek High School in June. He plans to attend the University of Texas at Austin and major in bio-related engineering, qualifying for pre-Med.

Robert R. Lachney, son of Ray B. Lachney of the Mission Operations' Space Station Systems Office, also plans to graduate from Clear Creek in June. He's going to attend Texas A&M University, majoring in mechanical engineering.

Brett D. Norbraten, son of Gordon Lee Norbraten of Mission Operations' Ascent Design Section, plans to graduate from Clear Lake High School in June. He's planning to major in political science at Rice University.

Walter G. Reese, son of Ann M. Murray of the New Initiatives Office's CERV Office, plans to graduate from Clear Creek in June. He'll attend Texas A&M or Lamar University and major in engineering.

Winners of the 1989 NASA College Scholarship are Mona Chia-I Lin, daughter of Dr. Feng-nan Lin of Kennedy Space Center; Erin McNutt, daughter of the late Arthur McNutt of Goddard Space Flight Center; and Michael L. Fripp, son of Dr. Archibald L. Fripp of Langley Research Center.

The NASA College Scholarship Fund Inc. was endowed by author James A. Michener.

## Endeavour joins fleet

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was composed of math students in grades 8-12. The team project was two-fold. They developed a math magazine, "Math Exploration with James Cook," written on three education levels, and they created a play, "Where On Earth?..." comparing Cook's 18th-century sea exploration to the Space Shuttle *Endeavour's* 20th-century space exploration.

*Endeavour* was the first ship commanded by James Cook, a British explorer, navigator and astronomer. In August 1768, on *Endeavour's* maiden voyage, Cook observed and recorded the transit of the planet Venus. In the view of the students, Cook's navigations, explorations and discoveries eventually led man to the possibilities of space exploration.

The two winning teams will be recognized in a Rose Garden ceremony at the White House on Tuesday with the STS-30 crew.

The new orbiter, previously designated OV-105, is being built by Rockwell International, Downey, Calif., to replace the orbiter lost in the *Challenger* accident. *Endeavour* is scheduled to be completed in 1991 with her maiden voyage scheduled for March 1992.